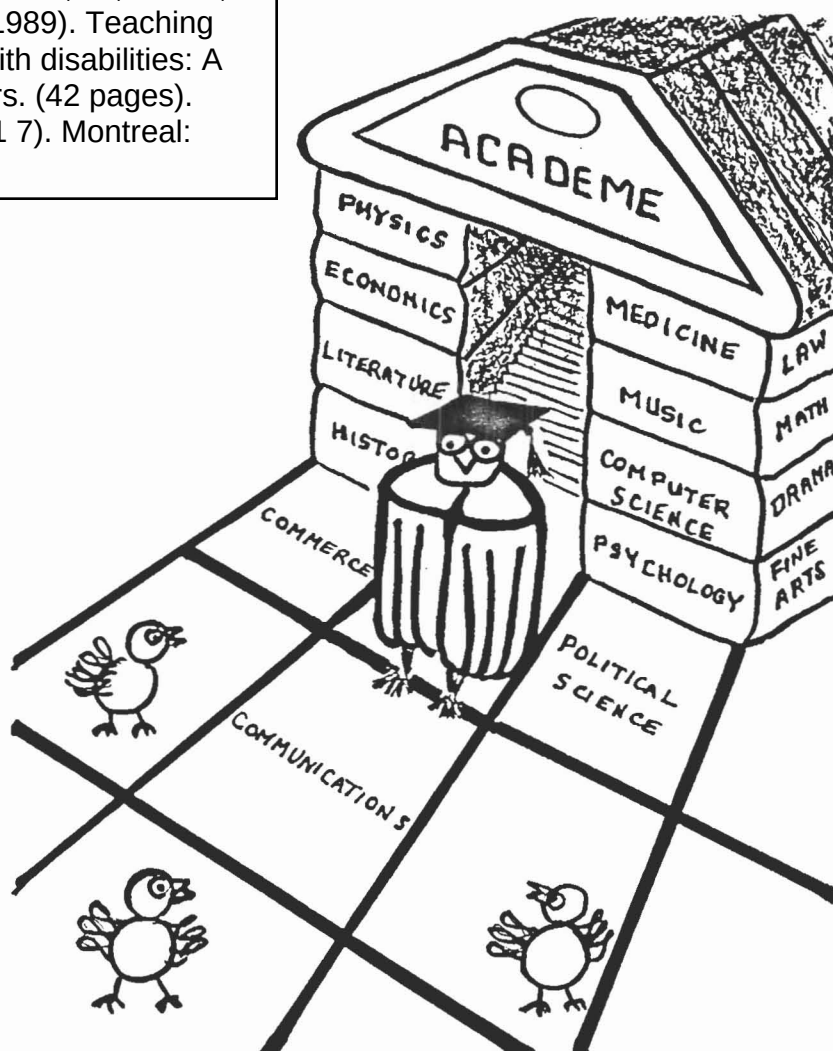


TEACHING COLLEGE STUDENTS WITH DISABILITIES: A GUIDE FOR PROFESSORS

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PART ONE - INTRODUCTION

1. WHY MIGHT PROFESSORS NEED THIS GUIDE?

"I have a blind student in my course. I usually get to class ahead of time so that I can set up my materials. I sometimes find that this blind student walks into the class early. He bumps into tables and chairs and generally has problems getting to where he wants to sit. I have often thought of going up to him to ask if he needed some help. But I never did. Perhaps he's touchy and would be offended if I offered help. If he doesn't want me to help, I don't want to interfere. Blind people are supposed to value their independence. So he might think that I consider him helpless. I really feel bad when I see him bump into furniture. But I just don't know what to do. So I haven't done anything. What should I do?" (Authors' files)

This was the dilemma posed by a physics professor at a seminar on teaching students with disabilities. Concerns like these are fairly common. While doing background work for our research on effective interaction between professors and their students with disabilities, we encountered many well-meaning professors who wanted to do the right thing for their students but who were uncertain about how to proceed.

"One of my students is in a wheelchair. She is failing my course by three marks. I've been agonizing for a long time about what to do. If I fail her, maybe she'll be so discouraged she'll drop out. Or she might get kicked out. I don't want to do that to her. If I pass her, I may be giving her the message that she knows the material. But she doesn't. And she tried so hard - maybe I should take that into consideration. But would this be fair to the other students? Many of them also tried and failed. It's really very difficult." (Authors' files)

Problems in the teaching-learning process may also arise because professors are uncomfortable dealing with students who have disabilities and because students are reluctant to ask for special consideration. Uncertainties by both groups concerning what are and what are not appropriate behaviors contribute to difficulties.

The range of concerns professors have about dealing with their students who have disabilities is illustrated by the following questions.

"Will I have to change what I do in the classroom?"

"How can I test students with disabilities so that it is fair for everyone?"

"Should I avoid topics such as blindness, paralysis, or sexuality in my course? What about words like 'see' 'hear' and 'walk'?"

"How will blind and wheelchair user students deal with their mobility problems?"

"Will disabled students be able to meet term paper deadlines?"

"How do I communicate with a student who has a hearing impairment?" (Authors' files)

Like other people, professors often feel ill at ease with their students who have disabilities. They worry about offending them, particularly in the area of offering too much or too little help. At times, professors simply have no idea about what to do in specific situations.



On their part, students with disabilities, like other students, have numerous concerns about how to relate to their professors. Most students who have disabilities do not like to be treated differently - as "handicapped students" - and are reluctant to discuss problems or to ask for special consideration from their professors.

"I wonder how professors will react to me? Will they be able to relate to me and treat me fairly?"

"Will the professors be helpful or not? Will they believe me or think that I'm using my disability as an excuse ... or maybe they'll just think I'm lazy and stupid." (Authors' files)



Often, when they need help from their professors, students question their own abilities.

"I really don't like to ask for special treatment. I'd like to be able to do things like other students. Maybe I just don't belong here." (Authors' files)

In spite of such concerns, many students do approach their professors.

"I must talk to the professor. If I do nothing, I'll probably fail the course... but I do wish I didn't need special attention. I don't like to burden my professors." (Authors' files)

Other students do not talk to their professors. They are anxious about approaching their professors and are reluctant to do so.

"I just couldn't bring myself to talk to them. I wanted to tell them about the problem but I just couldn't face it. I really wish I could talk to them, though." (Authors' files)

After reviewing the literature and our own research and summarizing the findings for this manual, it has become clear that there are many things that students, professors, service providers, and postsecondary educational institutions can do to help both students and professors in the joint enterprise of education. Suggestions for students with disabilities are summarized in a companion manual entitled "Students and Their Professors: A Guide For the College Student With a Disability". Recommendations for professors on how to get along with their students who have disabilities are, of course, summarized in the pages which follow.

The purpose of this manual is to help improve communication between professors and their students who have disabilities (Section 2 explains how the recommendations were compiled). The recommendations will help you, the professor, to cope more comfortably and confidently when dealing with your students who have disabilities and to become a more effective teacher for all of your students, both disabled and non-disabled.

2. WHOSE TIPS ARE INCLUDED IN THIS MANUAL?

We believe that the best advice for professors is by professors. Therefore, the suggestions included in this manual are based primarily on the experiences of college and university professors who have taught students with physical disabilities. To compile this manual, we have conducted a series of studies in which we investigated concerns and issues both of students who have physical disabilities as well as of the professors who teach them.

What Can Professors and Institutions Do?

Seventy-four professors who had experience teaching students with disabilities participated in our first study. We made sure that the participants represented different types of academic programs in different colleges and universities. Some professors had taught only one student with a disability. Others had taught many students with a variety of physical impairments.

We asked these 74 professors as well as 37 students with various physical disabilities the following questions. What can professors do to make their courses more manageable for students with physical disabilities? What can postsecondary educational institutions do to make academic life more manageable for physically disabled students and their professors? The professor and student participants made almost 500 recommendations about what would be helpful. We grouped these suggestions into categories and included them in Sections 13 and 14 of this manual.

What Should Be Done In Problematic Situations?

The next step was to ask professors who have had experience teaching disabled students and students with disabilities to identify those academic situations where they had concerns or had encountered problems in the past and to indicate what both professors and students typically did in these situations. Initially, we didn't ask people to state whether these were desirable or undesirable things to do - both professors and students simply told us what happened. We then compiled a long list of these behaviors, some of which were professor initiated and some which were student initiated. Then we asked all 74 professors and 37 students with disabili-

ties to rate the appropriateness of each of the behavioral options available to professors and to students in these frequently encountered problematic situations. The findings about appropriate and inappropriate behaviors identified by these professors and students are also included in Sections 13 and 14.

The results of the study on appropriate behaviors showed that, generally, professors and students agree on what are desirable and undesirable things to do. One finding of particular interest indicates that both students and professors believe that it is more desirable for the student to approach the professor concerning needed course adjustments than it is for the professor to approach the student. The results also showed, however, that students with disabilities evaluated requests for special consideration by disabled students more negatively than did their professors.

Professors of Students With and Without Disabilities

This raised the next question of whether professors are more likely to grant special consideration to students with disabilities than to nondisabled students and, if so, how professors' views differ about special considerations for disabled and nondisabled students.

To answer this question, 74 professors who had taught disabled students and 96 professors from similar programs and postsecondary educational institutions rated the appropriateness of disabled and nondisabled students requesting and receiving special consideration. We found that, generally, professors of disabled students believed it more appropriate for students to request and to be accorded special consideration (e.g., ask for and be granted an extension) than did professors of nondisabled students.

When it came to singling out a student for special attention, however, professors showed the opposite trend, with professors of disabled students believing it less appropriate to actively approach a student with a disability to discuss progress in the course or to talk about difficulties. The tendency to avoid offending students with disabilities by not according them special attention when one would grant this to nondisabled students can have deleterious consequences for students with disabilities since neither students nor professors are likely to discuss course concerns.



What Do Outstanding Professors Do?

The findings of these three studies formed the basis for understanding what professors and students **should do** and led to the following question in a fourth investigation. What do professors **actually do** and what do they **think** and **feel** in commonly experienced situations involving their students who have disabilities? To study this question we selected the most common academic situations in which students and professors interact and we interviewed 75 students with various physical disabilities and 57 professors who had taught them about their experiences. For each of these situations we asked professors the following series of questions. In this situation, how did you feel? What did you do? How did you feel about what you did? How effective was what you did? Parts Two and Three of this manual summarize professors' responses to these questions.

The 57 professors interviewed were by no means typical. Each was nominated by at least one of the 75 disabled students as one of their favorite teachers. Because these professors were singled out by their students as outstanding, we felt there was much to learn from them about how to teach students with physical disabilities effectively.

We also asked the 75 students with disabilities to tell us about their thoughts, feelings and behaviors. We summarized their responses and included these in a companion booklet for students with disabilities. Suggestions made by these students regarding what professors could do to help students with disabilities manage better academically and make it easier for students to learn in their courses are included in this manual.

This manual reflects, primarily, the views, experiences, and recommendations of professors who have taught students with disabilities. In some sections we have combined suggestions made by professors and by students. In Part Three - Relating to Students with Different Disabilities, we have also included suggestions based on the broader experiences of people who work with students who have disabilities.

Tips For Professors By Professors

In general, our contribution has been to carry out the studies, to interpret the results and to compile the suggestions into this manual. We have not editorialized or provided our own opinions - that would have destroyed the concept of recommendations **for professors who teach students with disabilities by professors who have successfully done so.**

PART TWO - RELATING TO STUDENTS IN SPECIFIC SITUATIONS

3. WHEN YOU FIND OUT THAT YOU HAVE A STUDENT WITH A DISABILITY IN YOUR CLASS

"Initially, I wondered if having a disabled student would slow down the pace of the whole class. I soon learned that it doesn't affect the other students."

"A person's disability should not be ignored, but it should not be overly emphasized either."

(Authors' files)

Issues

There are a variety of ways in which professors find out that they will be teaching a student with a disability. Some professors receive a note from their institution's coordinator of services for students with disabilities (the title of these individuals differs from place to place - their function is to assist students in obtaining the special support or services they may require). A short pamphlet about the nature of the student's disability and about recommendations to professors may accompany the note. Sometimes the student may contact the professor before registration or before the start of classes. In most cases, however, the student simply appears on the first day of classes and the professor becomes aware of the student's presence if the disability is visible.

With advance notice, professors might wonder about how to accommodate the student's needs, what types of changes to course structure may be necessary and how the student will cope.

"How can a student whose hands shake badly handle the chemistry lab equipment?"

"What will I have to do to allow a student with a hearing impairment to understand the lecture?"

"How will I be able to test a student who has a visual impairment?"

"What do I have to do and how difficult and time consuming will it be?"

"Can I do a good job of this?" (Authors' files)

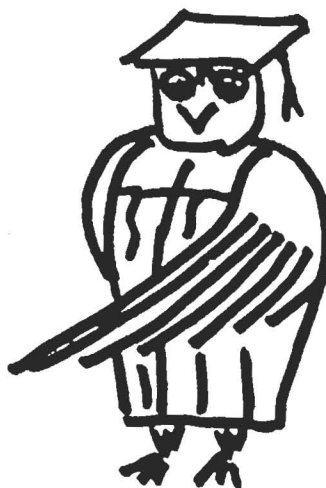
If the student contacts the professor before registration, what should one say if one believes, for example, that the student's disability will make it impossible or extremely difficult to succeed in the course? What accommodations are reasonable to

make and what kinds of adjustments are unwarranted?

If the student simply shows up on the first day of classes, what should one do? Does one approach the student to ask whether special consideration is needed or should one leave it up to the student to initiate dialogue?

What Professors Do

When they first notice that there is a student with a visible disability in class, most professors make sure that they speak to the student early in the semester. For example, during the first day of classes some professors simply issue an invitation to all students. This legitimizes the principle that it is acceptable to talk to the professor. For example, some professors announce, "If anyone has any concerns or issues about the course that they want to discuss, talk to me after class or come see me in my office."



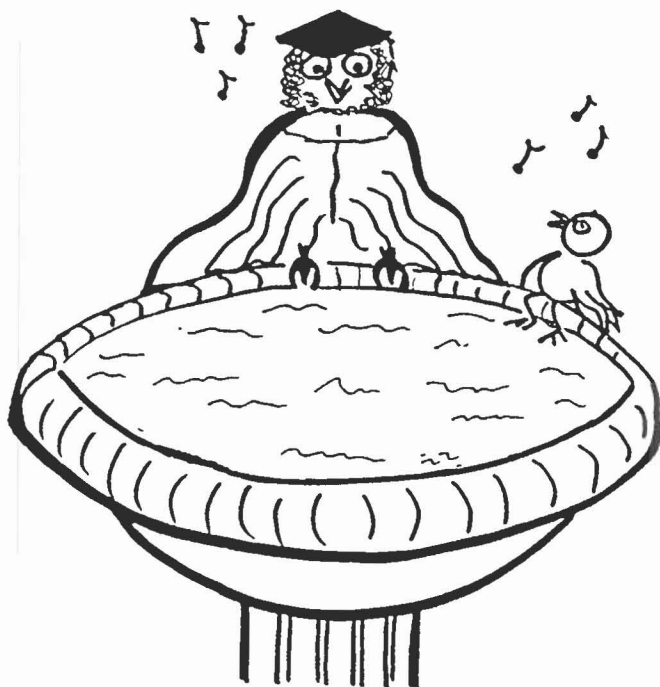
If the disabled student does not approach the professor even after such an invitation, professors usually approach the student to initiate contact - they do not wait indefinitely for the student to make the first move.

"I have overcome whatever discomfort I might have had. Now, I am direct and address the student right away."

"When I saw that I had a disabled student in my class I went over to talk after class to arrange for an appointment to discuss the course requirements and different strategies."

"I tell them to ask me if they need help or special consideration. I basically introduce myself and make them aware that I care." (Authors' files)

Often, professors have a chat with the student to discuss how the disability is likely to affect the student's performance in the course. They ask about what the student can and cannot do to meet course objectives and what strategies have worked in the past. During this discussion professors and students usually identify potential problems and discuss what the professor could do that would be helpful in terms of lectures, course materials, evaluation, and grading.



During the term, many professors make an effort to keep in touch with their students who have disabilities by asking them how things are going and by inviting students to see them if they encounter problems. They make time to see the student and make sure that students are aware that such contact

is not an imposition. Many professors also make it a point not to embarrass students by singling them out for special attention in class. In most other respects, professors generally treat disabled students as they would any other student.

"My natural reaction was to not treat them any differently, except for specific problems related to the disability."

"I consider them all disabled - I just have to find ways of enabling them all." (Authors' files)

How Professors Feel

When professors first find out about the presence of a student with a disability in one of their classes, some are enthusiastic and optimistic.

"I was eager to meet the challenge." (Authors' files)

Most, however, are somewhat dismayed; they worry about how to talk to the student, wonder if they will be able to teach the student effectively, and are concerned about the impact of the disabled student on the rest of the class. Many are also concerned about the extra time and work involved.

"Having a disabled student will interfere with the way I usually do things."

"What will I do and how successful will I be at giving the impression that I am comfortable with them?"

"I wondered whether they could accomplish the goals of the course."

"I'm usually a bit concerned and uncomfortable."

"I might not have enough time to give them because of large classes."

"Could I ask them about their limitations?"

"How will the class accept the student?" (Authors' files)

After talking to the student, however, professors generally feel much better about things. They feel more comfortable having discussed problematic issues. They feel better once they know what actions will be helpful. Also, professors feel more confident that the student will be able to cope with the course.

"I found out that they were just like other students."

"It was good to 'break-the-ice' and get to know them."

"A lot of my catastrophic expectations disappeared after we talked." (Authors' files)

Recommendations

1. Talk to students with disabilities early in the semester - during the first few days of classes. If they don't approach you, don't wait - approach them yourself.
2. Do not single out students for special attention in class because this could embarrass them. Speak to them privately about problems or issues related to the disability.
3. Discuss course issues related to the disability and identify potential problems. Talk about what the student can and cannot do in your course and discuss what adjustments or modifications you might make in your teaching style and in your evaluation procedures.
4. Encourage students to keep in touch with you during the term so that problems can be solved as they arise and so that crises can be averted. Let students know that you are available to meet with them.
5. In matters where the disability is not an issue, treat the student as you would any other student.

4. WHEN A STUDENT WITH A DISABILITY IS OFTEN ABSENT

"I would call any student if I noticed that they were missing tests or classes."

"I treated her like everyone else." (Authors' files)

Issues

Some students miss classes often, whether they are disabled or able-bodied. Students with disabilities may miss classes for the same reasons as many other students (e.g., not interested in the course, had other course obligations, didn't think lectures were important, socialized with friends instead, personal or family problems, overslept).

For students with disabilities, there may be other causes which may be beyond the student's control and, perhaps, more legitimate. These include: hospitalization, frequent visits to the doctor or to treatment, and difficulties with transportation. The issue of frequent absences becomes particularly important in courses with attendance requirements or in cases where the student has missed one or more exams or deadlines.

What Professors Do

When professors have reason to believe that the student may have a legitimate reason for frequent

absences, most professors will approach the student to talk about the problem if the student has not raised the matter with the professor.

"I contacted the student to discuss the problem and asked if she needed an extension." (Authors' files)

In some cases, where professors felt that the situation warranted this, they evaluated the student's performance differently from that of others.

"I waived the points I normally deducted for late assignments."

"I allowed the student to do a 'make-up' exam." (Authors' files)

Some professors treated students with disabilities the same way they treated nondisabled students (i.e., they made no adjustments). These professors indicated that, in retrospect, they did not believe that this was an effective course of action.

How Professors Feel

Most professors did not express any specific thoughts or feelings prior to talking to the student. After talking to the student or adjusting the evaluation scheme, however, most professors felt good and believed that they had done the right thing.

Recommendations

1. If the student doesn't raise the issue, contact the student yourself if you have reason to believe that absences are for legitimate reasons.
2. If the circumstances warrant (e.g., lengthy hospital stay which does not allow the student to make a required oral presentation), you may want to adjust your evaluation/grading system so that the student is not penalized.

5. USING EVERYDAY WORDS RELATED TO A STUDENT'S DISABILITY SUCH AS "SEE" "HEAR" AND "WALK"

"It felt strange to say, 'See me after class,' to a blind student who could not see me. But eventually I got comfortable with it."

"They're just words." (Authors' files)

Issues

Many words used in everyday conversation can relate to a student's disability. Do you **see** my point? The poet had a **vision**. I'll **see** you later. Let's **walk** to my

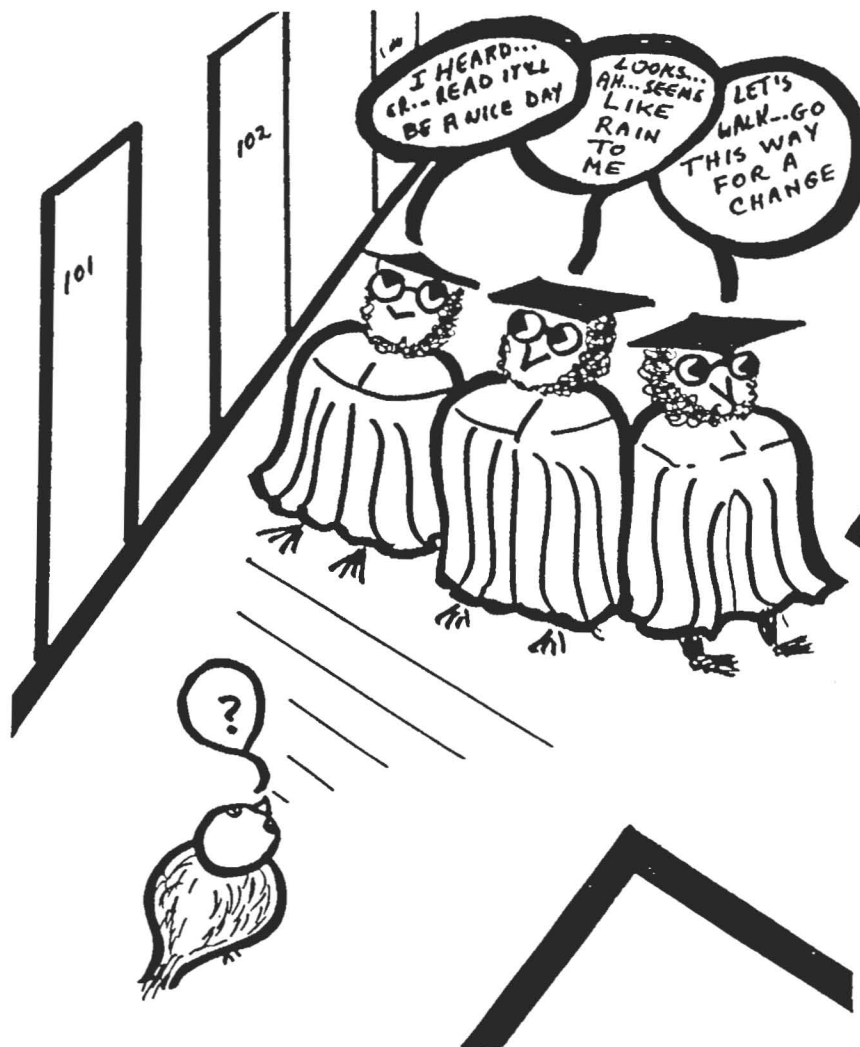
office to discuss things. I **heard** that the exam was difficult. **Listen** to me.

When talking to someone who has a disability, many people feel self-conscious about using such words. In some situations people will catch themselves mid-sentence and this, too, can feel awkward.

"Walk to class with me ... oh ... I mean come to class with me." (Authors' files)

What Professors Do

Most professors use such everyday words. The few professors who do not use these words perceive such avoidance to be ineffective.



"It's more natural to use my own language than to devise a special speech for a particular student."
(Authors' files)

"That's the way I speak." (Authors' files)

But others have had to adjust.

How Professors Feel

"I was self-conscious at first, but I was totally relieved when I said, 'See you later,' and the blind student said, 'You will, but I won't.'" (Authors' files)

"I was quite uncomfortable in the beginning. But now I feel OK. It is just a figure of speech."

"I have to use these words. It's silly to try to edit my language. Besides, the students use these words too."

Some professors don't think twice about using such words - they just use them.

"I feel fine about using the words now. I don't think about it any more." (Authors' files)

Recommendation

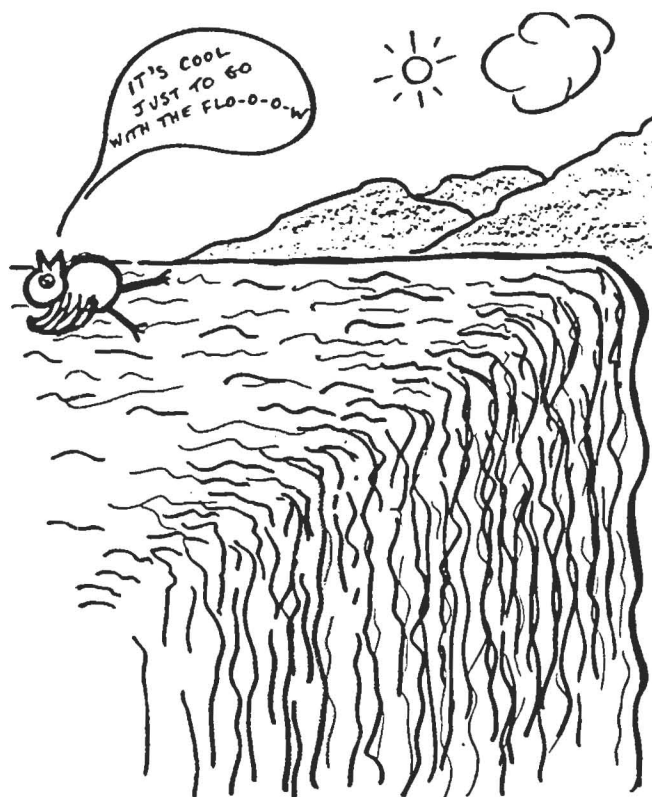
1. Speak naturally and use the words when you would normally use them, even if you feel awkward about it the first few times. Even people with disabilities use everyday words related to their disability.

6. WHEN A STUDENT WITH A DISABILITY IS FAILING

"Was there something else that could have been done?" (Authors' files)

Issues

Some students with disabilities cannot complete the course in the same manner as nondisabled students because their impairment makes it impossible for them to meet the course requirements (e.g., identification of slides when a student can see only light or dark, oral presentations for students with speech impairments). Others obtain failing grades for the same reasons as able-bodied students (e.g., poor preparation, inability to understand the work, lack of effort, poor literacy skills).



Professors' concerns are different, depending on the cause of failure. When students are failing because the disability makes it impossible for them to meet requirements, the professor may evaluate whether the requirements are essential to demonstrate mastery of the course or not, and base any further course of action on this factor. Sometimes, professors can anticipate such problems and deal with them early in the semester.



When a student with a disability is failing for the "usual" reasons, the situation is very different. Here, professors may be concerned about the impact of failure on the student's motivation to continue in higher education and about the consequences of failure on the student's future and self-esteem. Also, in this situation professors may feel pity, especially if the student has obviously tried hard to master the materials but was simply not able to do so.

"She tried so hard. How important, really, are the five marks that she would need to pass beginning economics in the larger scheme of things? Who will I hurt by passing her? But would it be fair to other students to pass a student because of a disability? Also, is it beneficial to let students think that they are doing well academically when this is not really the case?" (Authors' files)

To compound the dilemma faced by professors, it is often difficult to determine whether students are failing because of the disability or because they have not successfully mastered the course material for reasons unrelated to the impairment.

What Professors Do

When students are failing because the disability makes the course requirements impossible to meet, some professors adjust their grading system to allow students to demonstrate what they know. Often, this is done before a failure occurs. For example, a student with a speech impairment may be allowed to replace an oral presentation with a written equivalent or be allowed to audiotape a talk if the anxiety of standing in front of a class would make the student's speech impairment worse. Other professors do not do anything special.

"I try to suggest things that they can do instead of the problematic requirements."

"We had to devise tasks that would be different, but of the same intellectual challenge."

"I expected her to know the course material but I gave her different opportunities to show it." (Authors' files)

When the student is **failing for the typical reasons**, professors generally follow their usual course of action. Some speak to the student about the causes of failure. Others simply post the grades. Only rarely do professors add the needed marks to allow a student to pass.

"I spoke to him about the failure because I didn't like him using his disability as an excuse for not putting in the effort and missing classes."

"I speak to all of my students about a failure so that they know what the problems are and where they stand." (Authors' files)

How Professors Feel

"It was very difficult to separate the problems she had related to her disability and problems she had with language skills and previous education." (Authors' files)

Most professors whose students were failing because of the disability made adjustments in their grading schemes. Generally, they felt good afterwards, both about their own way of handling the problem as well as about the student.

"When I found a reasonable alternative, I felt terrific."

"I try to be fair with everyone. I think that switching the requirements around allowed me to be fair to her." (Authors' files)

If professors allowed the failure to stand, this was usually because they felt that whatever it was that the student could not do was an essential component of the course. When students fail because the disability makes it impossible for them to succeed, professors usually feel bad.

"I had reservations about the student's effectiveness in dealing with young children - because that is what the course was about."

"I felt bad and wondered what kind of future this student had?" (Authors' files)

Even when a student with a disability is failing for reasons unrelated to the impairment, professors generally feel unusually bad. Some professors go through a period of soul searching. Nevertheless, most professors let the grade stand.

"I was disappointed - he tried so hard."

"What would be better for the student? Should I be the one to flunk him out of college? What can he do if he does not get an education? Do a few marks really matter all that much? Could I have done more? Maybe I should have pushed harder or made more of an effort."

"It's unfortunate when any student fails ... but it bothers me more than with a nondisabled student. But I won't loosen up on standards."

"I tried to help but she wouldn't try. I still feel badly about the failure."

"I feel a bit worse failing disabled students. Maybe it's because I know them better. It's still difficult. Some students are under-prepared when they get into my course. I don't want to discourage them, but they shouldn't be in the class." (Authors' files)

Some professors have come to terms with failing a student who has a disability.

"Disabled students have the right to fail - like anyone else."

"Until the student grasps the basic skills to pass, there is not much I can do."

"I felt justified - it is what I would do with any other student."

"I cannot, in good conscience, pass students just because they tried hard. This is unfair. It gives students a false sense of their own abilities and allows them to take more advanced courses when they have not yet mastered the basics." (Authors' files)

Professors who talk to their students about the failure seem to feel a little better afterwards.

"I wanted him to know that he failed because he didn't try hard enough."

"I wanted to tell him that although he didn't do well in my course that this doesn't mean that he can't do well in college in the future."

"I suggested that he repeat the course." (Authors' files)

Recommendations

1. If the student is failing because the disability makes it impossible to meet certain course requirements, examine the importance of the problematic requirements in your course. If the problematic requirement is not essential, you may want to adjust your grading scheme so that the student can show mastery of course material in equivalent ways. (NB. this is not the same as simply waiving a requirement - it is **replacing** it with one of equivalent importance and level of difficulty.)
2. If it is essential that the student be able to complete all requirements, let the student know early in the semester that the course requirements will not be modified. If this is not possible, let the grade stand.
3. If the student fails for the "usual" reasons, allow the grade to stand. Do not pass students with disabilities just because they tried hard. This is unfair to all of your students.
4. You may or may not want to speak to the student about the failure.

PART THREE - RELATING TO STUDENTS WITH DIFFERENT DISABILITIES

7. TEACHING STUDENTS WITH VISUAL IMPAIRMENTS

"I had expectations - their brains and hands worked."

"I see my role as helping students learn."

"What does this student need? What would be helpful?" (Authors' files)

Issues

People generally do not realize that most visually impaired and legally blind individuals have some usable vision. Only a small proportion of students with visual impairments are truly blind.

Occasionally, students with visual impairments merely need to sit close to the chalkboard or move their eyes close to printed materials. Some use telescopes to see the board and they may need large print materials or magnifying equipment to read. Others rely primarily on audiotaping. While some students with visual impairments use braille, this group constitutes a small minority of students with visual impairments.

Some people with visual impairments use no mobility aids. Others use a folding white cane or a guide dog. One cannot make assumptions about the student's ability to read printed material by the presence or absence of a white cane. Some students can get around easily but cannot see printed material; others can read printed materials but have poor distance or night vision and, therefore, need a cane. Because of such discrepancies, any adaptations made should be adjusted to the individual student's needs.

Students who have a visual impairment often need adjustments to assist them with their courses. Professors have many concerns when it comes to teaching these students.

"What adaptations are needed and how will students cope with their problems?"

"How will the student take exams?"

"What about handouts?"

"How will the student take notes?" (Authors' files)

How Professors Can Help

When professors notice that there is a student with a visual impairment in their course, they generally approach the student during the first few days of classes if the student has not approached them. This helps to avoid crises later. They discuss how the disability is likely to affect the student's performance in the course, how the professor can help, what the student can and cannot do to meet course requirements, and what potential problems may come up later. They also discuss what assistance, if any, the student needs from classmates and talk about resources that may be available for the student (e.g., if professors know that the text has already been audiotaped, they tell the student how to obtain it). The coordinator of services for students with disabilities can be very helpful in providing professors and students with expert assistance if they are unsure about how to proceed.

Most professors who have a student with a visual impairment try extra hard to be effective teachers. They organize lectures carefully, make assignments very clear, and make a particular effort to communicate effectively. In addition, they let their students know that they are available to discuss course issues or problems either after class or in their office and, if necessary, arrange a regular meeting time to discuss course concerns.

"It is my job and these are some of the things I must do as a teacher." (Authors' files)

Professors may also want to stay in touch with visually impaired students by periodically asking them how they are doing and by repeating their invitation to meet if there are problems. In most other respects, professors generally treat the student as they would any other student and do not overcompensate by doing things for students with visual impairments that they would not do for others.

"I told them to just ask if they need help. I gave them support, reassurance and encouragement."

"I made myself available to them." (Authors' files)

Lectures and Lecture Notes

It is helpful if, on the first day of classes, professors announce their name and the title and number of the course. This way students can be sure that they are in the right room.

When writing on the chalkboard or overhead projector, professors should try to speak as they write. Indicating the spelling of specialized words is also a good idea. Drawings, formulas, charts, graphs and diagrams on the chalkboard or overhead projector need to be described. For some students, an overhead transparency is more visible than the chalkboard.

During lectures, it is helpful if the professor avoids terms such as "this" and "that" or "here" and "there" when referring to written information - these may be meaningless to someone with a visual impairment. Also, nods and gestures may not be seen. In addition, when a professor plans to answer questions after class, it is desirable to announce this so that the student with a visual impairment is aware of the opportunity to get problematic issues clarified.

"If I write names or hard words on the board, I spell these out for them. I also make my writing as clear as possible."

"I always said out loud what I was writing on the board." (Authors' files)

Students vary in their preferred mode for taking notes during lectures. Some students write their own notes. This often takes more time than that required by the average student because letters must be large and because students often use capitals rather than cursive script. Some students with visual impairments may use a portable closed circuit television system (Visualtek) to magnify their own writing both in and out of class.

Other students use a braille template called a stylus. Occasionally, students use a portable computer, a braille writer or an electronic typewriter. Many students prefer to audiotape lectures. Professors can help students by allowing them to use this type of equipment in class or to have a note taker present (someone who takes duplicate notes using carbon paper or carbonless duplicating paper). It is also helpful to allow students to audiotape lectures; students can be asked to sign a contract that the tape is to be used for course purposes only.

Some educational institutions can produce tactile graphic aids (e.g., raised line drawings). If this service is not available, an easy way to make raised lines is to trace the lines with white glue. Alternately, students may be given a copy of the drawing or graph so that they can look at it under their closed circuit television magnifier or have it made in raised lines. If models are used, the professor may give these to the student to feel.

Audio-Visual Materials

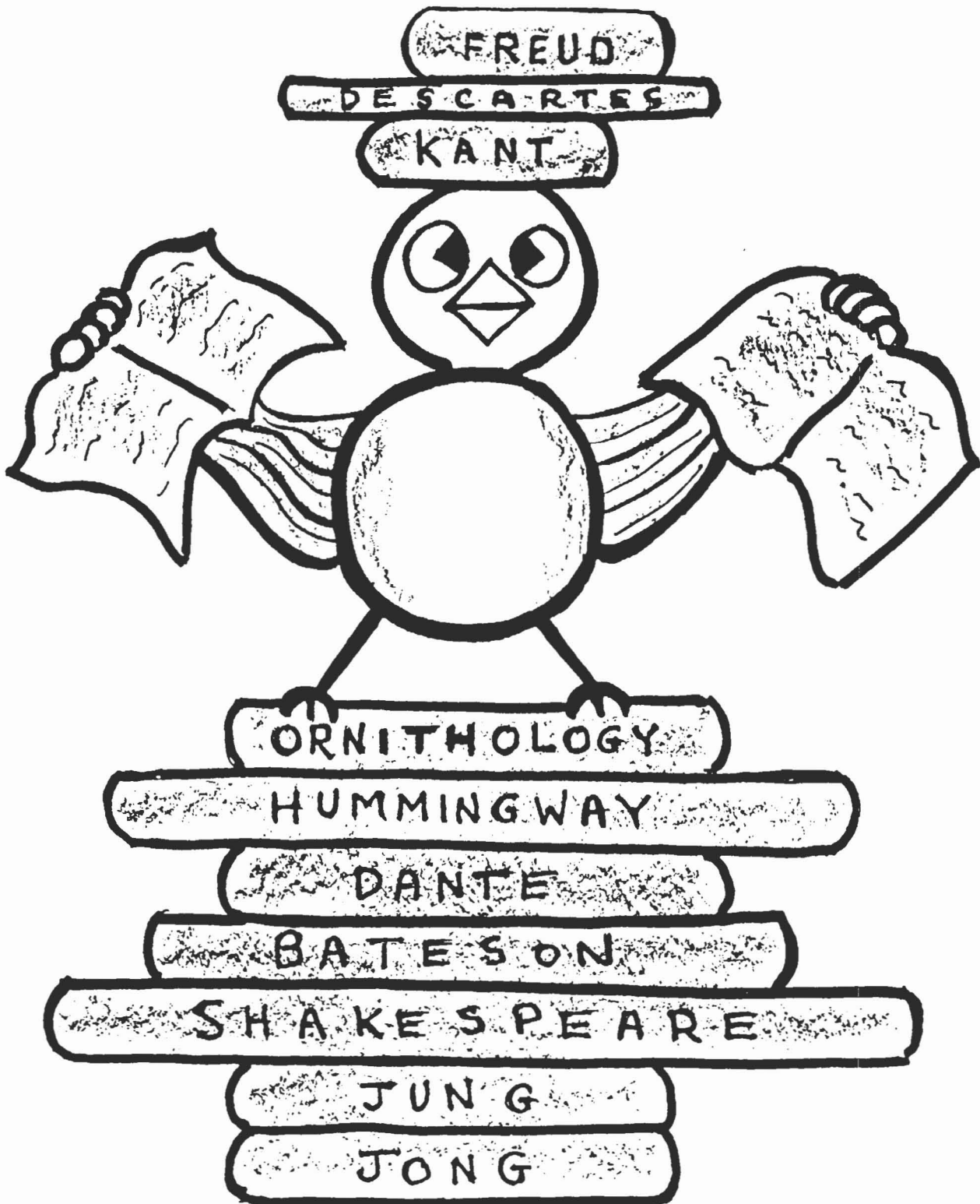
Students may have difficulty seeing pictures and slides and they may miss important portions of films and videotapes. Professors can provide commentary on slides, introduce visual materials by providing a synopsis beforehand, and fill in the gaps of visual information on films or video tapes. Films and videotapes may also be lent to students to allow them to review these with an assistant.

Reading Assigned Texts and Articles

It is helpful to give students handouts, reading lists and assignments early. This allows for the extra time needed to audiotape or enlarge the material, thereby enabling students with visual impairments to keep up with the rest of the class.

Texts are sometimes available from specialized libraries on audiotape or in braille; these libraries are usually located out of town. In the future, books may also be available on computer disks. If the student needs books from specialized libraries, it may take several weeks to obtain the necessary materials. Assigned books or articles may be read onto audiotape specifically for the student. This is usually faster, but the quality of this type of reading varies (e.g., sometimes tables, figures, authors, titles and references are omitted).

Lengthy optional supplementary reading lists may pose problems because it may take a long time to obtain these materials and because it is very laborious and time consuming to skim an audiotape. Also, spontaneous recommendations for additional readings during the semester can cause difficulties. To help them overcome such problems, professors can inform students about required readings as early as possible. Professors can also discuss with the student which of the optional references and supplementary materials are particularly important to read.



Exams

Some students with visual impairments will be able to write exams with other students. Others may be able to read exam questions but may need additional time, especially in the case of lengthy passages or multiple choice questions. Professors often make adjustments to allow students with visual impairments an equal opportunity to demonstrate that they have learned the course material.

Making an exam accessible to a visually impaired student is the professor's concern. For example, after discussing it with the student, professors may decide to put their exam on audiotape, have it brailled, make an enlarged print version or have someone read it to the student. Most educational institutions have photocopiers which enlarge and word processors and printers which allow for large print. Some professors may want to give an oral exam instead.

"After discussing it, I had the assignments and exams enlarged so that the student could see them better." (Authors' files)

The way in which the professor accepts the student's exam answers is also typically discussed: audio-taped, handwritten, typed, word processed, brailled or written down by an assistant. If calculators are allowed, the student may want to use a talking calculator which usually has an ear plug. Students can occasionally use a computer both for reading their exams (if the exam is on disk) as well as for writing their answers. There is also the issue of arranging for a suitable location to allow the student extra time in a supervised context, if necessary. Some professors make a "take-home" version of the exam.

It should be noted that an open-book exam may be unfair to a student with a visual impairment and that allowing a visually impaired student to take an in-class exam home may be unfair to other students who must write it in class.

Assignments and Library Research

Students with visual impairments may need extensions on assignments because of extra time needed to do library research. Getting an assistant to help with catalogs abstracts and indexes, having material audiotaped and listening to tapes are very time consuming. Therefore, professors should generally specify assignment topics early in the semester so that students with visual impairments can get a head

start. Also, it is helpful if professors are flexible with deadlines on assignments.

"As with anyone else, if someone asked for an extension on the assignment with a good reason, I granted it."

"I remember not making too many deals on cutting course content, but I did give extensions."

"When I hand out assignments, I say to everyone, 'If you have any problems, just come and see me.'"
(Authors' files)

Labs

Some students with visual impairments may need a sighted partner or assistant in the laboratory. Labeling chemicals and instruments in large print or braille can also be helpful.

Other

Students with visual impairments need clear directions on how to get to the professor's office. When giving directions, one should not point but, instead, use compass points (north, south, east, west), left or right, and ahead or behind. On the first visit, professors may want to walk to their office with the student in order to help him or her learn the location.

When walking with a student who is visually impaired, it is preferable to allow the student to take one's arm rather than grasping the student's hand. When guiding a student, one needs to slow down when approaching obstacles and tell the student what's happening (e.g., stairs going up, groups of students in corridor). If the student is to sit somewhere, one should put his/her hand on the back of the chair - the student will take it from there. If the student has a guide dog, the animal should not be petted.

If there are unexpected hazardous materials or objects in the class or lab, professors should inform students with visual impairments. In case of fire alarms, it is generally the professor's responsibility to ensure that the student has appropriate assistance to evacuate the building.

How Professors Feel

"You have to teach students in a way that they can learn. I did whatever I could have done."

"I felt really good that I was having a significant input to her education."

"I spent a lot less time with her than with other students who were just lazy." (Authors' files)

Professors who have taught students with visual impairments generally feel quite confident about knowing what to do and about how to approach the student. They also feel positive about their students, perhaps because they get to know them and feel comfortable talking with them. Experienced professors rarely think twice about talking to visually impaired students about course concerns or about making adjustments.

*"I felt it was normal - no big deal."
"It is part of my job."* (Authors' files)

They did not always feel this way, however.

*"I thought at the beginning, 'What will I do?'"
"At first I was uneasy about my ability to satisfactorily deal with students with visual impairments."*
(Authors' files)

Recommendations

1. Talk to students with visual impairments early in the semester - during the first few days of classes. If they haven't approached you, approach them yourself.
2. Discuss course issues related to the disability and potential problems.
3. Talk about assistance that the student may need from classmates, tell the student about resources for your course if you know of these, and discuss what kinds of modifications to your regular routine would be helpful (e.g., seating arrangements, format of exam, grading issues).
4. Make adjustments in your teaching style which would make it easier for the student to learn (e.g., allow audiotaping, say aloud what you write on the chalkboard, hand out assignments and reading lists early).
5. Be flexible with exams (time needed, format) and with deadlines on assignments (there may be problems getting articles in a readable format for the student or in finding assistants to help with library research). Do not, however, grant unearned grades.
6. Make a special effort to be well organized, to make assignments clear and to communicate effectively.
7. Let the student know that you are available to discuss course concerns and keep in touch with the student during the term.
8. When the disability is not an issue, treat the student the way you treat any other student.
9. The coordinator of services for students with disabilities can be helpful in providing expertise and specialized services (e.g., supervised exam location, audiotaping of exams).

8. TEACHING STUDENTS WITH MOBILITY AND MUSCULAR IMPAIRMENTS

"I wanted to leave them options and not override them because I wanted them to be independent."

"If having a disabled student in your class is something you're not used to, you must be upfront with them."

"I give special consideration to many students who find themselves in unusual predicaments." (Authors' files)

Issues

Although many muscular and mobility impairments are visible (e.g., use of prosthesis, canes, crutches, wobbly gait, wheelchair), many are not (e.g., multiple sclerosis, arthritis). Some medical conditions are such that the person experiences pain, spasticity, or lack of coordination. In other conditions, there are intermittent flare-ups (when a student might be absent from class) and periods of remission, where the student seems to have no impairment of function (e.g., multiple sclerosis). These students often have concerns about their credibility with the professor.

"Will professors believe me when I ask for an extension on an assignment or will they think I'm just trying to get extra favors?" (Authors' files)

A number of wheelchair user students are able to get out of the wheelchair. Some wheelchair users have full use of their arms and hands while others do not. Students with muscular and mobility impairments may also have a hearing or speech impairment (e.g., cerebral palsy). Others may tire very easily. Because of vast differences among students, even when they have similar impairments, the best judge of what the student can or cannot do is the individual himself or herself.

How Professors Can Help

Professors generally talk to their students who have a mobility or a muscular impairment about the impact of the disability on their ability to function in the course and about adaptations which may be made by the professor and by the student. Sometimes there is nothing else the professor need do.

"A few desks were cleared for his wheelchair and that's it."

"I ask them if there is anything I can do to make things easier." (Authors' files)

In most cases, however, professors make some adjustments in teaching style. For example, they may be more lenient with these students when they are occasionally late getting to class. They will also more readily allow lectures to be audiotaped. Some professors will try to ensure that the student has adequate seating in class.

"My class was crowded, so I made sure that she had a chair. She would have been too weak to stand during the class."

"I made allowances so students could work to their full potential." (Authors' files)

Some professors keep in touch with their students during the term and ask them periodically about how things are going. They also make time to be available to the student in case there are difficulties. In other respects, professors treat their students with mobility and muscular impairments as they would any other student.

"I feel very strongly that I must not take responsibility for something that disabled students could do themselves." (Authors' files)

Reading Assigned Texts and Articles

Obtaining texts and other readings from bookstores located off-campus often poses difficulties for students with mobility impairments. Students may need help from another student to pick up the required materials. Professors may help by checking with the student that such arrangements have been made.

Once they have the materials, most students with muscular or mobility impairments have no problems with readings. Some students, however, for example those with multiple sclerosis or head injuries, may have difficulties because of blurry or double vision. Others may have problems turning the pages. In these situations, it is helpful to inform students about required readings early in the semester. This will permit students to have the material audiotaped or to read at their own pace, thereby allowing them to keep up with the rest of the class.

Lecture Notes

Because of spasticity, easy fatigue, paralysis of arms, or slow writing speed, some students have difficulty taking notes and handling equipment. They may need someone to take notes for them. Some students use a lap-top computer to take notes in class while others prefer to audiotape lectures. Concerns about audiotaping may be dealt with by

asking the student to sign a contract stipulating that the tape is to be used only for course purposes.

Exams and Assignments

Most students will have no unusual difficulties with exams. Some, however, will need extra time and special arrangements (e.g., typewriter, computer, an assistant to write down answers). For others, the optimal format may be audiotaping answers or oral exams.

*"I'd ensure they had proper facilities to write exams."
"He couldn't write very fast. We arranged a time for him to take the exam in my office so he would have more time."*

*"I let her do exams orally instead of in writing."
(Authors' files)*

Extra time may be needed for assignments due to slow writing speed or medical concerns which may involve large chunks of time in doctors' offices or hospitals. Students may also need an assistant to help with inaccessible libraries or with books and journals located high on library shelves. Some professors make suggestions about library resources.

"Once I realized that the problem was due to her disability, I gave her advice about other libraries where she could get the necessary books." (Authors' files)

Absences, Lateness and Accessibility Issues

"I insisted that disabled students be as prompt as anyone else unless there were transportation problems." (Authors' files)

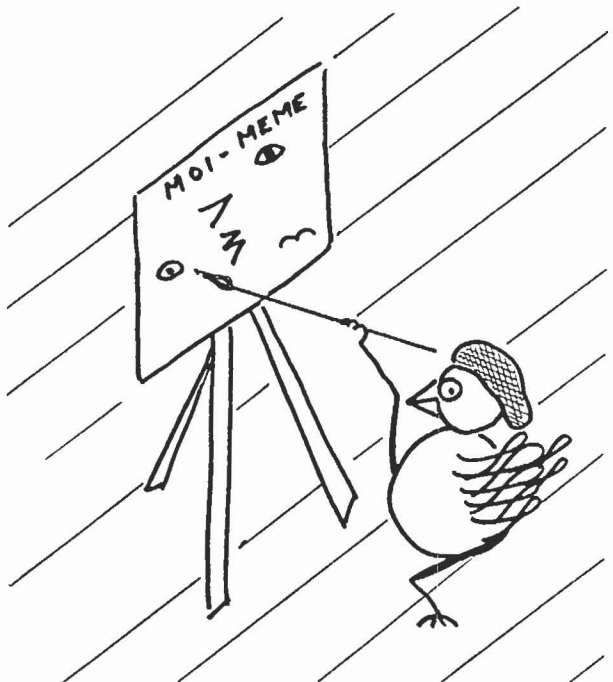
Because of medical concerns, some students may be absent frequently. Also, transportation systems occasionally break down. In addition, weather conditions such as heavy snow may cause difficulties getting to class on time. Even if students do not use a wheelchair, they may rely on special transportation (which sometimes fails or provides erratic service), or they may have to walk slowly from one class to another.

Many students experience difficulties with access and with transport; ten minutes between classes may be inadequate for someone who walks slowly, who has to arrange for help moving from one floor to another, or for someone who has to wait for a crowded, slow-moving elevator. While in most cases students will take such factors into account when

selecting their classes, sometimes, especially in the case of required courses, students cannot avoid arriving late for class.

"If disabled students arrive late for class, I'm more likely to let them in." (Authors' files)

Often, while the building itself is accessible, areas inside the building are not (e.g., auditorium, labs, classrooms, libraries, offices). It might be necessary to request a change of classroom or to find a room that is accessible in order to meet with the student. Tables, lab benches, easels, drafting tables and the like may not accommodate students in wheelchairs. The coordinator of services for students with disabilities or a counselor may help with information concerning who to call for adaptations or for arranging to have the work done. Maintenance and repair services on campus may also be helpful with adaptations for stairs or furniture.



"My class was not accessible to a wheelchair user student. So I said, 'This won't do,' and had it changed."

"I made a fuss with our physical plant people to raise one of the drafting tables so that the student could use it." (Authors' files)

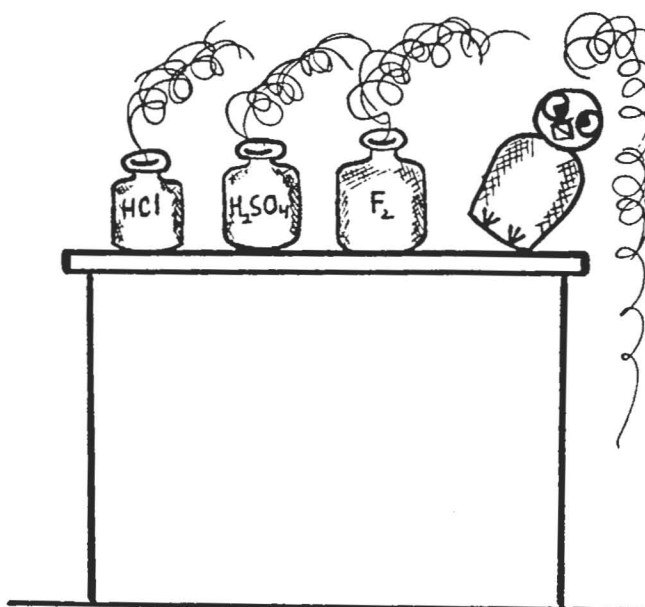
When professors intend to hold a class in a new location or go on a field trip, it is advisable to check to make sure that the student's transportation needs are met and that the new site is accessible.

"If there were any class moves to be made, I checked first to make sure that the new location was accessible." (Authors' files)

Labs

Some students will be helped if laboratory equipment and supplies are located nearby (less walking and carrying). Others will require help manipulating tools or laboratory equipment and chemicals. An assistant, who merely functions as the student's hands or legs, may also be needed. The coordinator of services for students with disabilities may be helpful in finding volunteers.

CHEMISTRY 101



"So what if it is not his pair of hands that are pouring the chemicals?" (Authors' files)

Other

In case of fire alarms, it is necessary to make sure that the student has appropriate assistance to evacuate the building. Students who use a wheelchair will have particular difficulties because most elevators are not used during fires and fire alarms. It is inadvisable to carry students if one does not know

how. If carrying a student becomes necessary, one should consult the student for appropriate techniques. The coordinator of services for students with disabilities or the nurse may also be helpful in providing professors with techniques and information about the institution's policy regarding fire alarms and wheelchair user students.

When talking to wheelchair user students for extended periods, one may want to sit down so that students do not have to crane their neck for long periods of time. Also, many students in wheelchairs prefer that people not hang on to or lean on the wheelchair. Most students are not pleased if someone comes along and provides unnecessary assistance. The majority of students will ask for help if they need it. Professors can offer to help, but one should not insist. Also, one should not pat wheelchair users on the head.

When giving directions to a student with a mobility or muscular impairment, professors should try to be aware of distances and possible barriers; some students cannot walk for long stretches and those with wheelchairs have problems with stairs and some types of doors. If professors need to push a wheelchair, put it in a car, or move it down a step, they should get instructions from the student. Also, if the student moves out of the wheelchair, one should be careful not to move it out of reach.

How Professors Feel

"How will she manage physically?"

"I wondered what I would have to do to help her succeed?" (Authors' files)

Before talking to the student, some professors feel reasonably comfortable.

"I felt OK. I knew I could ask the student what would be necessary." (Author's files)

Others have some reservations. In some cases, professors feel that their judgment may be clouded because they are sorry for the student.

"I feel that I'm pretty unaware of some disabilities."

"It's hard to let students know that I'm available without making them feel like I'm overly concerned or anticipating problems." (Authors' files)

Once professors do talk to the student, they still have some negative feelings.

"I wouldn't like to be in his shoes."

"I don't like it when students tape my lectures."

"I felt that if I give the mobility impaired student special treatment, I couldn't turn down requests from other students." (Authors' files)

Overall, however, professors feel considerably more positive **after** talking to the student. They believe that discussing things was the right thing to do and feel more comfortable with the student and more optimistic about the future. Professors also found that by talking to the student, the onus of figuring out what should be done was lifted.

"The students often had good ideas about what could be done. It was a big help."

"We can resolve the problems. Things will work out O.K. for both of us."

"It was very rewarding to do things for the student. He was very appreciative and it was easy to do things for him."

"To change the room for her so she could have access was just normal human consideration."

"Helping the student was no big deal. I wish more of my students had her attitude." (Authors' files)

Recommendations

1. Talk to students about the impact of the impairment on their ability to do well in your course and about adaptations that you can make to help them do well.
2. Make some adjustments in your style (e.g., be more flexible about occasional lateness, allow audiotaping, make sure the classroom environment is accessible) and inform yourself about fire drill procedures with mobility impaired students.
3. If the student's impairment interferes with writing ability, allow extra time for exams and be flexible with the modality in which the student provides answers (e.g., oral or audiotaped rather than written answers).
4. Stay in touch with the student during the term and be available in case of problems.
5. If you are aware of resources (e.g., accessible libraries), let the student know about these.
6. Try to ensure that field trips and final class celebrations and activities are at accessible locations.
7. Treat the student as you would all other students whenever possible. In some cases, you need do nothing special at all.

9. TEACHING STUDENTS WITH HEARING IMPAIRMENTS: BEING UNDERSTOOD

"If I see a puzzled look, even from nondisabled students, I repeat what I said."

"I sometimes stopped talking and asked the class if they understood." (Authors' files)

Issues

Students who have hearing impairments vary tremendously in their ability to understand speech. Some students, whether they wear hearing aids or not, hear very little. Sometimes these students are able to talk quite fluently, however. Therefore, judging the severity of a hearing impairment by the presence of a hearing aid or by the student's speech is not always appropriate.

Although they may wear a hearing aid, many students rely primarily on lip reading. Some students are excellent lip readers. Most are not. Even good lip readers usually comprehend only 30-40% of what is said and extrapolate the rest, often not very accurately. Also, lip reading students are frequently unable to hear class members' comments and have difficulty hearing professors if they cover their lips, face the chalkboard, move about, or wear a beard.

People who wear hearing aids may not hear sounds the way others do. Hearing aids do not do for sound what glasses do for people who are nearsighted. Hearing aids usually amplify all sounds and can make small noises, loud air conditioning, hissing fluorescent light fixtures, traffic noise and the like overwhelming. Sometimes, people with hearing aids can hear only jumbled and disjointed fragments. This experience can be so unpleasant that some students choose not to wear a hearing aid at all.

Whether in class or during a private conversation, professors frequently find themselves in situations where they are not sure that the student has understood them. Blank or puzzled looks, responses to questions that were not asked, head nods in the wrong places, and inappropriate responses in general can alert the professor that the student didn't understand.

Sometimes, students will indicate that they have understood when, in fact, this is not the case. Students may believe, falsely, that they got the gist of what has been said. Alternately, students may simply not want to reveal that they missed some crucial parts. What should professors do in these situations, either during a private conversation or in a class,

when they believe that everyone else has heard clearly?

Some students need oral or sign language interpreters. Oral interpreters listen to what is said and repeat it silently (mouth the words); they usually sit very close to the student. Whatever communication system is used, the student may have to really concentrate in order to understand. This is much like the difficulty people have in understanding a poor quality film or videotape and it can be a very fatiguing experience. In addition, many students with hearing impairments have difficulty reading lengthy or complex passages. Others may have poor grammar or spelling. This is not a sign of lack of intelligence, but of difficulty relating to language in general. Because of vast differences between students with hearing impairments, it is essential to discuss what adaptations would be helpful with each student.

How Professors Can Help

Lectures, Notes and Class Discussions

During lectures, students with hearing impairments often need to have the professor's speech amplified so that they can hear. Some students may ask that the professor wear a small wireless FM microphone that is compatible with their hearing aid. Most professors agree to do so. Other students may need to audiotape lectures so that they can play the tape back at a higher volume. Again, most professors agree to be audiotaped. The student may be asked to sign a contract stipulating that tapes are for course use only. When students tell the professor that they need to bring an interpreter to class or to have a note-taker present (possibly a classmate who uses carbon paper or who will lend notes to the student for photocopying), professors usually agree. They also allow students with hearing impairments their choice of seating.

Questions from classmates and dialogue between the professor and other students in the class can also pose problems for students with hearing impairments. They may not be able to lip read comments made by students who are sitting behind them, thereby missing classmates' points altogether. Many professors repeat classmates' comments. This helps non-hearing impaired students as well.

Professors can do a variety of other things to help. For example, it is very useful to hand out notes or outlines for each lecture as well as written descriptions of assignments which clearly state what is expected. Most professors who teach hearing impaired students try extra hard to be effective

teachers (e.g., make assignments clear, make good use of the chalkboard or overhead projector). They also make a variety of accommodations after discussing with the student what would be helpful. For example, professors generally try to be diligent about writing important points and notices on the chalkboard or overhead transparency.

Students with hearing impairments may have difficulties with technical or uncommon words. It is helpful to provide a written list of these words for the student or to write these on the chalkboard or overhead transparency during the lecture.

While lecturing, to make it easier for the student to read lips, one should face the student, not cover one's mouth, and avoid being back-lighted. It also helps if the professor stays in one place rather than pace back and forth. Speaking slowly, clearly, and loudly are also beneficial.



One should not, however, yell or exaggerate lip movements - this often makes it more difficult for lip readers to understand. Use of an overhead projector is preferable to a chalkboard if one wants to make comments while writing - this way the professor faces the class. One should not talk about ideas or concepts while facing the chalkboard, and one should try not to point to written information and say "this" or "that". The student can't see the professor's lips and read the information at the same time.

"Although it's not easy, I remind myself continually to face the class at all times." (Authors' files)

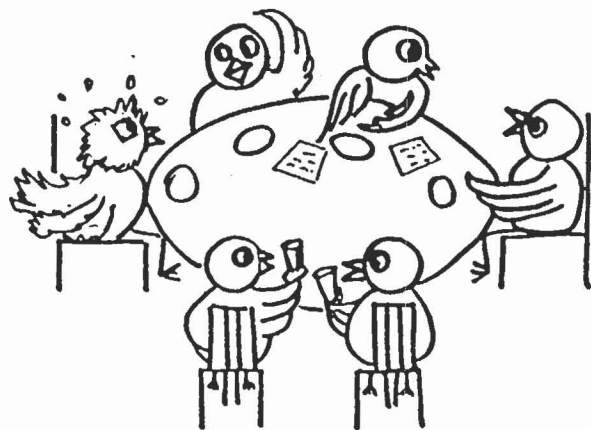
If it is obvious that the student has missed important information, some professors arrange to meet with the student to clarify matters either on an ad-hoc basis or during a regularly scheduled appointment. Indeed, the only thing which professors occasionally do which they consider to be ineffective is to do nothing when they believe that a student has not understood them.

"Since I spoke quickly and sometimes not very clearly, we arranged tutorial sessions once a week to go over the material individually." (Authors' files)

Assigned Texts, Articles, Exams, Assignments

Students with hearing impairments may need to have extra time for readings, assignments and exams (e.g., to consult a dictionary, slow reading speed). These students may also have problems with grammar. Some students, aware of problems with their grammar and spelling, have someone proofread their papers or type their exam answers and assignments on a word processor with a spelling checker. This, too, may take extra time. Of course, such arrangements are usually not possible in the case of exams written in class.

For students who have a hearing impairment, grades for participation in group or class discussions may pose a problem; students may be unable to see classmates' lips if they sit facing the professor. This problem also occurs if classmates cover their lips, fail to face the student, or if two or more students are speaking simultaneously. Small groups pose fewer problems.



Audio-Visual Materials

Students with hearing impairments can have difficulty understanding professors' commentary on slides, films, and videotapes if the room is darkened. Also, students may miss audible information on films and videotapes if they cannot read the speaker's lips.

Many television shows and videotapes are "captioned films for the deaf" or "closed captioned for the hearing impaired". The captioning automatically goes onto the videotape when a program is recorded. What this means is that when an appropriate decoder is used (a device similar to an external television converter), the dialogue appears at the bottom of the screen, much like on a subtitled film. Captioned tapes will not interfere with nondisabled students' viewing and will allow a hearing impaired student to follow the program. The coordinator of services for students with disabilities or the institution's audio-visual department could be of help in obtaining a decoder and in demonstrating its use. As for slides and non-closed captioned videotapes and films, it is beneficial to give a brief synopsis before the presentation and to review key concepts afterwards. It may also be helpful to lend audio-visual materials to students to enable them to use their own decoder or get explanations from an assistant later.

Communication Inside and Outside the Classroom

"I had to check to make sure that she was following the discussion." (Authors' files)

When one is not sure that a student with a hearing impairment has understood a point during a conversation outside class, one can always ask, "Did you understand me - would you like me to go over it again?" and take the time to ensure that the student has understood. In class, however, singling out a particular student in this way is not appropriate.

Most professors, when they realize that understanding lectures may pose problems, meet with students to discuss their ability to follow the lecture and to meet the course requirements. Things that the student and the professor could do to alleviate problems are best discussed early in the semester. It is also helpful for professors to inform students about the college's resources (e.g., learning center, volunteer or paid note-takers, available equipment, readings which could be done to replace missed auditory material).

When hearing impaired students do not understand, repetition and paraphrasing may be effective. If this doesn't work, one can communicate by writing. When talking with students who have a hearing impairment, one should make sure that they are paying attention when one speaks. A tap on the shoulder will alert them.

When talking to a student who uses a sign language or an oral interpreter, one should address comments to the student and look at him or her, not the interpreter. The role of the interpreter is to translate - not to act as an intermediary between professors and students. Typically, the interpreter is not a student in the course and he or she should not be treated as a student. When a student has an interpreter in class, it is usually necessary to have a note-taker as well because students cannot look at the interpreter and write at the same time.

Professors can telephone students with hearing impairments if necessary. Some students can use a regular telephone provided it has a volume control in the handset. For others, this is not adequate; these students use a "TDD" (telephone device for the deaf). The TDD consists of a keyboard (similar to an electronic typewriter) which has a small screen (to see what has been typed) and a cradle for the telephone handset. The TDD allows people with hearing impairments to type their messages, which are transmitted via the telephone to another TDD. The system works much like a modem on a computer. Generally, this requires that both parties have a TDD. In Canada, there is a service, usually provided free by the telephone company, where a TDD user and someone with a regular telephone can communicate. TDD users type their message and a human operator reads this to the other party, who uses a regular telephone. Similarly, the operator listens to what is said and types the message so that the TDD user is able to read it. One can call the telephone company to find out whether this service is available in one's area.

Other

Because students with hearing impairments might not hear a fire alarm or a ringing bell, the professor may need to alert them. As a hearing impairment is not visible, students with hearing impairments may be upset if they think that the professor is singling them out in an obvious way in class. Students may not want class members to know about the disability or to have attention drawn to themselves.

How Professors Feel

Before talking with their students, a few professors approach the prospect of making modifications to their teaching routine in a positive way. Generally, however, professors are very apprehensive about the experience, have many negative thoughts, and worry about the adaptations they may have to make.



"How on earth will we communicate?"

"Hearing impaired students are the hardest to teach."

"This student will take class time away from other students."

"I think about the extra time I will have to devote to this one student. I just don't feel good about this."

"I'm going to have to think about monitoring myself to face them and put an effort into pronouncing clearly." (Authors' files)

In light of these negative expectations, it was surprising to find that most professors generally feel very positive **after** making the necessary modifications.

"I did the right thing. The whole class profited from the experience."

"Her presence really kept me on my toes and prevented me from becoming sloppy in my teaching."

"I felt good about what I did and I was comfortable with the changes. They were not as bad as I expected them to be. Even though seeing her often took so much time, it was clear to me that the student benefited." (Authors' files)

This is not to say that all professors are so optimistic. Some professors dislike wearing the FM microphone. Others believe that some hearing impaired students are not well prepared to handle their courses. Generally, however, the changes in professors' thoughts and feelings before teaching students with hearing impairments and after having taught them is very dramatic.

Recommendations

1. When you are not sure that a hearing impaired student has understood you in class, talk to the student, preferably early in the semester, and discuss how the disability affects the student's ability to succeed in your course.
2. Talk about what modifications you could make that would be helpful (e.g., lecture style, audiotaping, use of chalkboard, use of equipment).
3. In a one-to-one context, check with the student if you are not sure that you have been understood. Repeat or rephrase if necessary. If this doesn't work, write.
4. Discuss what resources students could use to help them compensate for missed material.
5. Try extra hard to be an effective teacher.
6. If you have reason to believe that the student has missed important points in class, especially dates of tests, exams, and assignments, arrange a meeting to go over the material.
7. **Do not** avoid dealing with the problem. Do something about it.

10. TEACHING STUDENTS WITH HEARING AND SPEECH IMPAIRMENTS: UNDERSTANDING THE STUDENT'S SPEECH

"Patience was the key." (Authors' files)

Issues

Some students who have a hearing impairment are difficult to understand. This can also be true for students who have a neuromuscular impairment such as cerebral palsy. Professors can encounter problems both in and out of class when trying to communicate with a student who has a speech impairment.

"What should I do in class when the student asks a question that I cannot understand?"

"Should I answer the question I think was asked or do I just say, 'I didn't get that. Ask me after class.'"

"Should I ask the student to repeat or paraphrase?"

"What about oral presentations in class - what should I do?"

"What should I do about the problem when it occurs after class or in my office? Do I ask the student to write or to repeat and rephrase many times or should I eventually just nod and pretend to understand to stop the agony?" (Authors' files)



Speech Impairments in Hearing Impaired Students

Many students with hearing impairments also have a speech impairment. This is not always the case, however. Some students learned to talk before they lost their hearing and can express themselves very well.

When students with hearing impairments do have difficulty with speech, they may talk in a monotone which is unusually soft or loud. Also, problems with slurring can make the student's speech virtually unintelligible. With time, however, one may come to better understand the student.

Speech Impairments Unrelated to Hearing Impairments

Students may have difficulties with speech even though they do not have a hearing impairment. Some students stutter badly. Others have difficulty with articulation (e.g., students with cerebral palsy), with speech that is very slow (e.g., head injury), or with finding the appropriate word (e.g., learning disability). Sometimes the impairment is severe enough that the student's speech is almost completely unintelligible.

How Professors Can Help

Most professors take the time to understand what the student is saying.

"I'd just persevere to listen and try to understand what she was saying."

"Sometimes I say, 'I'm not sure I understand you,' and then ask her to repeat."

"I asked him to specify his question on paper if I didn't understand him." (Authors' files)

Some professors merely let the student know that they are available to discuss course concerns. Others talk to the student about the implications of the speech impairment for succeeding in the course and about possible modifications that could be made. Professors might also occasionally make some adjustments during class.

"I slowed down the environment of the class so that he could take his time." (Authors' files)

During class discussions, it may be helpful to ask students with speech impairments questions in advance, and get back to them a few minutes later for the answer. This can give students time to write their answer or to think about their answer for a few

moments. Giving students this extra time sometimes allows them to have better control over their speech. Before trying these possibilities, however, professors should discuss the alternatives with the student.

Oral presentations frequently pose difficulties for students with speech impairments. The stress of speaking in front of a group is likely to accentuate speech impediments and cause the student to be particularly difficult to understand. Some professors change their evaluation system by exempting the student from certain requirements. Alternative arrangements such as tape recording a talk at home, substituting a written presentation, or having someone else read the student's prepared talk can also be made.

When speaking to speech impaired students, one should avoid completing their sentences for them. It usually takes a while to become familiar with a speech impaired student's diction. But sometimes even familiarity does not help. If one has severe difficulty understanding a student's speech, it may be necessary to ask the student to write.

Some students who have a speech impairment also have a mobility problem. They may be unable to type,

write or use sign language. In this case, they will probably be using a device which allows them to communicate by using a head pointer (a pointer attached to a band around one's head) or a mouth wand (stick held and moved by mouth) and either a keyboard or a tablet containing the alphabet. Some students use a computer with voice synthesis capability.

How Professors Feel

"I wasn't sure that I would do the right thing."
(Authors' files)

When professors do not understand a student with a speech impairment, most feel very bad. They are not sure what to do and feel very uncomfortable.

"I just can't understand her. What do I do now?"
"This is an experience I don't want." (Authors files)

After making an effort to understand the student, professors generally feel much better.

"It took patience, but eventually my ear 'got trained' so that I was able to understand her."
(Authors' files)

Recommendations

1. Take the time to understand students' speech. Ask them to repeat, to re-phrase or to write.
2. Talk to the students about their needs and about what could be done to compensate. Let students know that you are available when they have questions.
3. Try to accommodate to students' needs in class (e.g., if you understand a student's question but think that others in class do not, incorporate the question into your answer).
4. Make needed adjustments to your evaluation scheme (e.g., replace oral with written presentations if both you and the student feel that this would be helpful).

11. TEACHING STUDENTS WITH LEARNING DISABILITIES AND HEAD INJURIES

Issues

Most people assume that students who do not read very well, have problems setting goals and schedules, or are easily distracted and slow in learning new concepts do not belong in college. Such students are usually seen as unintelligent, lazy or unmotivated. Although students with learning disabilities and head injuries often have difficulties focusing their attention or with reading, writing, organizing, or comprehending spoken language, they are usually of average or above average intelligence and are often highly motivated. The problems which they have are not due to stupidity or to lack of motivation but to difficulties in how they perceive and process information.

Learning disability is a catchall phrase for a variety of impairments which are hidden and involve difficulties in receiving, processing, transmitting or sequencing information. Students who have problems with reading and writing might reverse numbers, letters or phrases and they sometimes even skip them completely. Other students have problems with memory, spelling, grammar, writing, manipulating symbols, spatial organization, paying attention, or with sequencing ideas, concepts and steps. Students like this may be slow readers and may hand in poor quality written work. Other students have difficulty interpreting and making sense of auditory information.

The thing to remember is that students with learning disabilities and those with head injuries are not retarded. Information may simply get jumbled at the input or at the output stage. They are able to learn, but the ways by which they assimilate information and the methods by which they can demonstrate what they have learned may be different. Also, many of these students have low self-esteem because of frustrating and demoralizing experiences in their earlier schooling. Many students with learning disabilities were called stupid or lazy in the past, even by their teachers. In addition, students with learning disabilities were frequently put into classes with "slow learners" or with students who had other academic problems.

Students with learning disabilities may have difficulties with reading, writing, spelling, grammar, mathematics, visual-spatial perception, sequential memory and auditory discrimination. This means that they may encounter problems with various aspects of

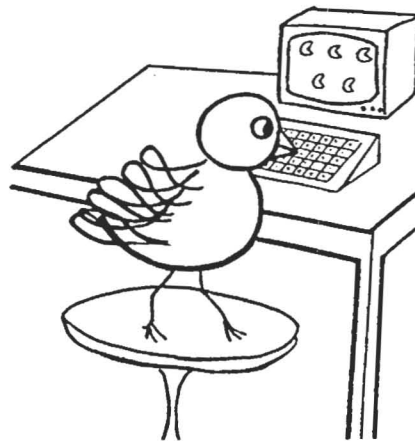
courses: lectures, readings, labs, assignments, papers and exams. There may also be problems with scheduling and coordination, (e.g., arriving to class on time, taking notes and listening simultaneously), with attention span or with confusing verbal and nonverbal messages. Also, there may be large discrepancies in the student's abilities (e.g., an excellent vocabulary but poor reading skills, good reading skills but difficulty making sense of oral information). Most students with learning disabilities will not have problems with all of these aspects of academic work.

The variety of learning difficulties included under the rubric of learning disability is vast and the range of severity of these disabilities is great. Therefore, few recommendations which apply equally to all learning disabled students can be made.

How Professors Can Help

Professors should talk to the student to discuss his or her special learning needs, find out what the student can and cannot do in meeting course objectives, and find out what has worked for the student in the past and how the professor can help. Another valuable source of information and support is likely to be the institution's learning or tutorial center and the coordinator of services for students with disabilities. If the college or university does not have a learning skills center, one can try the counseling department.

For those students who are primarily auditory learners - those who express themselves well but who have problems with reading or writing - professors may use techniques similar to those which are appropriate for students with visual impairments (e.g., allow audiotaping, substitute oral exams for written ones). For students who are primarily visual learners and have problems with spoken language, one may make adaptations similar to those for hearing and speech impaired students. In general, students with learning disabilities are helped immeasurably by computers which have spelling check or voice synthesis capability.



12. TEACHING STUDENTS WITH OTHER DISABILITIES

There are a number of illnesses and medical conditions which can affect students by impairing their energy level, memory, mobility, speech, vision, or muscular coordination (e.g., heart conditions, allergies, arthritis, asthma, migraine headache, back pain, diabetes, respiratory disorders, epilepsy, cancer, kidney problems, AIDS). In some cases, the degree of impairment may vary from one day to the next because of the nature of the medical condition, medication received, or therapy. Some diseases are progressive and get worse year-by-year; this may have emotional consequences for the student. Because of medical involvement in many of these

conditions, some students may be absent from class frequently and they may need similar accommodations to those discussed elsewhere in this manual. Other students will need no special adaptations. Therefore discussing problems and solutions with the students is vital for effective teaching and learning to take place.



PART FOUR - KEY POINTS TO REMEMBER

The following lists contain a general summary of the suggestions presented in the manual. In addition, we detail suggestions made by both professors and students about what professors could do to facilitate the teaching/learning process. Many of these suggestions do not appear elsewhere in this manual. The tips presented here incorporate suggestions for coping with a broad range of experiences and difficulties which professors who teach students with disabilities may encounter.

13. WHAT PROFESSORS CAN DO

Before Classes Start and Early In the Term

1. During the first class, announce that if anyone needs special arrangements or consideration to come to see you.
2. Find out from colleagues with experience, students, organizations, and written materials how the student's disability could affect learning in your course.



3. Know about services available for students with disabilities, lobby colleagues and administrators for needed equipment, and tell students about available equipment and resources.
4. If the student has not approached you, approach the student to ask if adjustments are necessary and to indicate that you are available to help.
5. Meet with the student early in the term and then meet regularly. Give extra time outside class.
6. Give an outline of the course, explain course content and requirements clearly, be exact about necessary reading materials and provide this information early in the term to allow for advance planning by the student.
7. Discuss teaching and learning alternatives with students, take strengths and weaknesses into account, and make individual adjustments if these are needed (e.g., offer a reading course or an individualized program, arrange special viewings of audio-visual materials for the student).
8. Discuss with the student what resources are available to help you make the necessary adaptations (e.g., FM microphone).

During the Term

1. Make a special effort to be a good teacher in general (e.g., make lectures and notes easy to understand, make assignments clear, be open minded when dealing with students, understand and adapt to the needs of individual students).
2. Be flexible with the content and format of assignments and exams (e.g., oral, braille, audiotaped, written) and give extra time if needed.
3. Encourage the student to stay in touch with you (e.g., "If you have a problem, come and see me.").
4. Arrange for other students to help (e.g., mobility, tutoring, study, readers, notes) and encourage them to interact with disabled students (e.g., by assigning students to work in pairs, having students work in small groups). If stu-

dents need help finding classmates for note taking and the like, assist them with this.

5. Allow choice seating for students with a disability.
6. Let students with disabilities know that it is acceptable to tape lectures, to have someone take notes, and to bring an interpreter to class.
7. Encourage the student and comment on good work.
8. Discuss problems with the student (e.g., frequent absences, lack of participation in class activities, inappropriate social behavior such as continually interrupting others).
9. Speak to the student and the volunteer together if you notice that a volunteer helper is doing a poor job or is doing too much for the student.
10. If necessary, recommend that the student go to a tutorial service or a learning center for extra help. Suggest extra readings to make up for what a student may have missed in class.

Students with Visual Impairments

1. Make sure required materials (e.g., exams, assignments, handouts) are available in braille, large print, or on tape.
2. Use tactile models, visual relief maps, replicas, etc. to convey ideas.
3. State aloud what you write on the chalkboard or overhead projector.

Students with Hearing and Speech Impairments

1. Give lectures slowly and loudly. Be sure that your mouth is not covered by your hand or a book. Repeat if necessary. Face the class and not the chalkboard, avoid standing behind the student or walking back and forth in front of the class. Write all important material on the chalkboard or overhead transparency and be sure that material is written clearly and that it is well organized. If you wear a beard or a mustache, be especially sensitive to students who may not hear you because they read lips.
2. Be patient and take the time to communicate effectively. Ask students to repeat or clarify if you don't understand their speech. In the case

of a hearing impairment, check whether the student has understood you if you are in doubt.

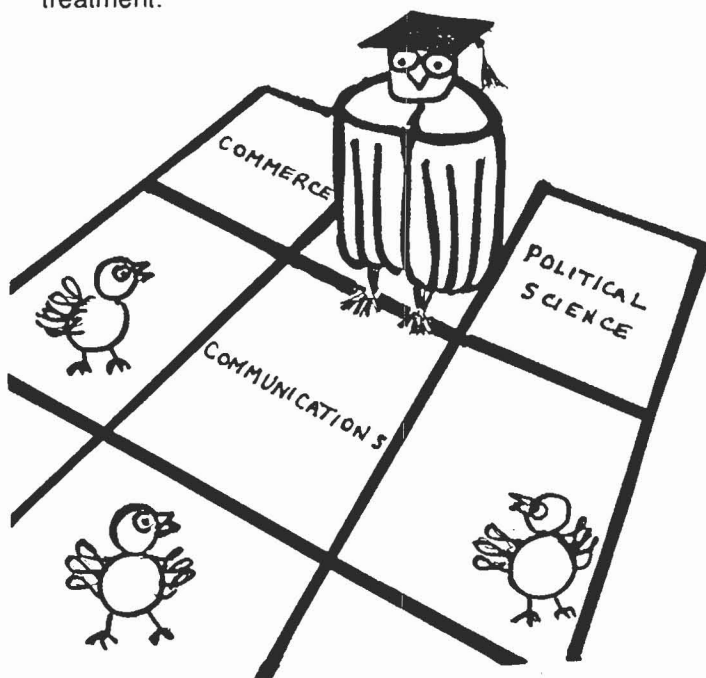
3. Hand out typed or printed notes.
4. Use an amplification system.
5. Repeat classmates' questions if the student can't hear these.
6. If the student has a speech impairment and you "call on" students to speak or read in class, check privately with the student to ascertain whether he or she feels comfortable speaking in class.

Students with Mobility Impairments

1. Ensure that the class, lab, building, field trip, etc. is in an accessible location.
2. Make sure that classroom and lab furniture are appropriate for wheelchair users.
3. Admit students who have mobility impairments to class if they occasionally arrive late.

General

1. Be supportive but do not be overly solicitous. Treat the student as any other student whenever possible. Make adjustments to allow the student an equal opportunity to learn. Remember that identical treatment is not "equal" treatment.



2. Make adjustments when evaluating students' performance by giving them an equal opportunity to demonstrate that they have mastered the course material. **Do not**, however, accept work of a lower quality from students with disabilities and do not give unearned marks by assigning a passing grade only because the student tried hard.
3. Do not overcompensate by doing things for students that they can and want to do on their own.
4. Do not delve into students' medical histories or inquire about their diagnosis. Stick to the information that you need to evaluate the student's ability to function in your course.
5. Avoid embarrassing students by singling them out for special attention in class.
6. Use everyday words such as "see" "hear" and "walk" with students who have disabilities.
7. Do not discourage students from taking your course. If you foresee problems, discuss these but let students make up their own mind - they probably know their strengths and limitations better than you do.

14. WHAT EDUCATIONAL INSTITUTIONS CAN DO

Professors and students can only go so far without support from their educational institution. Institutions which discourage students who have disabilities from applying, place insurmountable physical and admissions barriers before them, and fail to provide services needed by the students and the professors who teach them communicate to the academic community the message that students with disabilities are not welcome on campus.

In both Canada and the United States there are minimal legal safeguards against discriminatory admissions policies. In essence, these merely forbid institutions from asking about the presence of a disability. However, many students who have a disability contact the college prior to application, and a number of departments and faculties have preadmission interviews. In such cases, one can only hope that the spirit of the law prevails.

What about programs which specifically require either sensory or physical abilities? Can a student with a visual impairment become a chemist or an engineer? Can a hearing impaired student or a wheelchair user become a physician? In spite of numerous documented instances of success, many colleges and universities are still struggling with these issues.

Institutional attitudes can be inferred by examining whether the college or university is providing needed services, equipment, resources, and architectural and physical facilities, and by whether there is any attempt to train staff and faculty, conduct sensitization programs, or help to set up a student organization. Of course, the speed with which needs are met is also an important indicator.

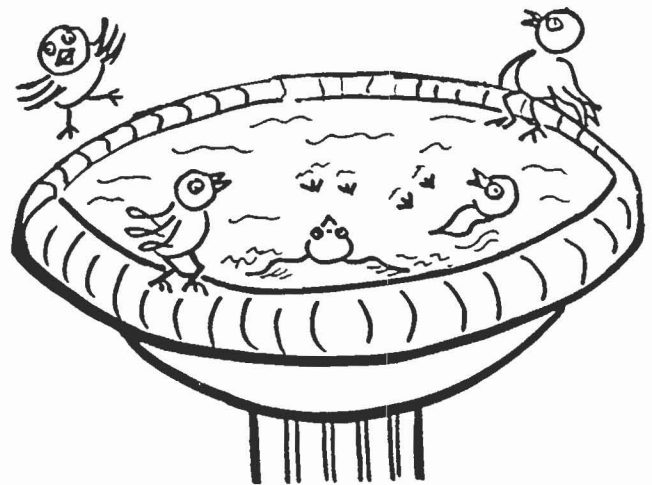
The literature suggests that most postsecondary educational institutions have made an effort to accommodate students with disabilities and that various beneficial changes have taken place in the past 10 years. Yet, there is still much work to be done in making colleges and universities fully accessible to students with disabilities. The list which follows derives from one of our studies in which both students with disabilities and their professors indicated what educational institutions could do to help.

The list which follows is extensive. Many institutions of higher education will be unable to provide all of the services, facilities, equipment and resources

listed below. The recommendations are not meant to suggest an all-or-nothing situation. The more recommendations which are followed, the more hospitable the environment is likely to be both for students with disabilities and for the professors who teach them.

Services

1. Establish and maintain a center for students with disabilities which (a) serves as a drop-in center for students with disabilities and their professors, (b) provides services (e.g., resources, counseling, resource people, specialized services, a liaison person for disabled students and their professors, contact with professionals familiar with various disabilities), (c) disseminates information (e.g., on various disabilities, on teaching methods), and (d) sponsors "awareness" and "sensitization" programs.
2. Ensure the availability of volunteers or paid personnel such as readers, note takers, helpers with library access, typists, Braille translators, aides for help with washrooms, lockers, and mobility in general.
3. Give support to help establish and operate a viable disabled student group.



4. Provide tutors.
5. Provide help with transportation (e.g., inter-campus, from home to institution).
6. Set up scholarships and help with bursaries.

7. Make available a professional support system (e.g., coordinator of services, audiologist, medical advisor, counselor, academic advisor).
8. Improve fire-safety procedures to take into account the presence of students with disabilities.
9. Set up designated study areas with appropriate equipment in labs and in libraries with easy access to frequently used resource materials and references.

Facilities

1. Ensure wheelchair accessibility in libraries, classrooms, labs, buildings, etc. (i.e., ground floor classrooms if possible, replace unnecessary impediments such as stairs with ramps, make accessible: doorways, telephones, door handles, toilets, fountains, food, light switches, pencil sharpeners, lockers, elevator buttons, etc.).
2. Provide ramps appropriate for students who use a wheelchair.
3. Ensure that elevators and escalators are approachable by students with disabilities and that there is easy access to these (reserved if necessary).
4. Provide desks, chairs, tables, easels, studio equipment, and lab furniture at proper levels to accommodate wheelchairs.
5. Provide quiet, well lit rooms for study and exams [i.e., carpeted (to deaden sound), no buzzing or flickering lights (needed by hearing and visually impaired students)].
6. Provide flexible classroom seating arrangements.
7. Allocate a room to store wheelchairs for times when these are not in use.
8. Make physical adjustments for students with visual impairments (e.g., elevators with a floor sound indicator, Braille menus in cafeteria).
9. Provide specially equipped meeting areas.

Equipment/Resources

1. Tape recorders (regular, high volume, small, four-track, etc.).
2. Miscellaneous specialized equipment [e.g., dictating machines, talking calculators, taillon slates, computers (with symbolic mathematics capability, spelling checker, and voice synthesis), note taking paper, special telephones with amplifier, Visualtek].
3. Audio-visual equipment for classrooms (e.g., microphones, FM system, sound amplification system, transmitters/receivers, good facilities for taping, closed caption decoder, opaque projectors, overhead projectors, **clear** overhead transparencies).
4. Braille books and audiotaped (talking) books.
5. Typewriters.
6. Braille writers.
7. Equipment for emergencies and breakdowns (e.g., spare wheelchair, crutches, canes, hearing aid batteries, wheelchair battery charger, audiotapes, etc).
8. Other resources: films or slides for deaf students (e.g., words on film), tactile models for students with visual impairments (e.g., for biology, chemistry).

Other Recommendations

1. Hold programs and seminars to sensitize the college community to the presence of students with disabilities.
2. Make some changes in admission and registration procedures (e.g., accept more students with disabilities, keep a record of disabled students, grant priority at registration, help to arrange manageable schedules, provide on-site orientation, try to ensure courses on a single campus, inform professors ahead of time if a student needs special help or facilities, set up meeting between professors and students to allow professors to tell students in advance

what books are required, allow students to take a reduced load of courses without loss of full-time status, facilitate the admission of students with disabilities into specific courses).

3. Try to provide a welcoming, open minded atmosphere and an administration which provides swift response to professors' and disabled students' needs.
4. Provide a forum for research and discussion (i.e., encourage professors and professionals to share experiences and solutions to problems encountered in teaching students with disabilities).
5. Suggest to professors that they have an obligation to search for ways to help the students with disabilities who take their courses.
6. Offer complementary courses in sign language and braille for nondisabled students.
7. Advocate for improved resources and human rights at all levels.

15. SOME FINAL WORDS

What has not been made explicit but is only implied by the recommendations summarized in this manual is that most suggestions for effective teaching of students with disabilities apply equally well to the teaching of nondisabled students. All students benefit from lectures which are audible clear and well organized, from readings and assignments which are specified early, and from flexibility with the format and content of assignments and exams.



Professors, who are expected by their students to be experts and to "know it all", often have doubts and concerns about their ability to teach students with disabilities effectively. Experts in their disciplines, professors are not experts in how to best adapt their courses to students with special needs. Here, in many cases, the student is the expert. Discussion of possible solutions is clearly called for to optimize the teaching/learning process and to make both students and professors more comfortable. During such discussions, professors may want to remind themselves that students with disabilities are generally not highly sensitive and that acknowledging uncertainty about appropriate behavior is not pejorative for either professors or students.

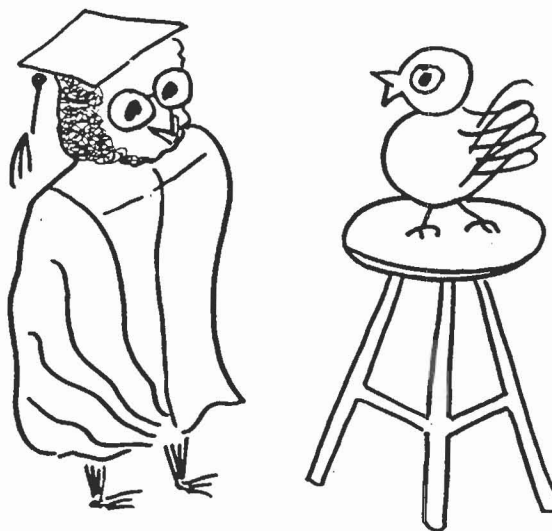
When both parties are baffled, trial-and-error, with good intentions and good faith on both sides, usually carries professors and students through. Sometimes, the coordinator of services for students with disabilities (or whoever is responsible for providing assistance to students with disabilities and their professors at your institution) can be consulted. These

student services professionals have encountered many problems similar to the ones you may be experiencing and they can contribute valuable expertise and resources.

Of course, it would be naive and simplistic to suggest that all academic and course concerns of students with disabilities and their professors can be resolved through dialogue. Some problems have no solution that is acceptable to everyone. Also, there are "bad" students, just as there are "bad" professors. But bad students are not the norm at most colleges and universities.

In some cases, professors do not know how to relate effectively with their students who have disabilities. They would like to help, but do not know how and do not feel comfortable about approaching their students. Others try too hard and, with the best of intentions, inadvertently patronize or do too much for their students - actions which are often resented by the students who find such behavior demeaning and frustrating.

The best solution to these problems, too, is for students and professors to engage in dialogue. If the student does not initiate such discussions, the professor should. Sometimes difficult to do, our research shows that dialogue between professors and students is the most effective way of resolving teaching and learning problems and getting on with the work of educating all students in the most effective way possible.





PART FIVE - RESOURCES AND REFERENCES

16. GLOSSARY

Knowing the specific name of a student's diagnosis is usually not necessary for effective teaching. Professors should be guided not by a medical diagnosis but by the student's specific **abilities** and **disabilities** in the professor's course. Nevertheless, it is sometimes helpful to know the nature and possible implications of a disorder. Therefore, a brief synopsis of common disabling medical conditions follows.

Cataracts. A cataract is a congenital or acquired clouding of the lens of the eye. It can cause visual problems.

Cerebral Palsy. CP is a congenital disorder affecting parts of the brain. It is not progressive and can affect mobility, vision, speech, hearing, and hand and finger coordination. Students with CP also experience spasms. This can cause great variability in what students can do at different times.

Cystic Fibrosis. CF is a hereditary condition affecting the body's ability to digest food properly. It also creates a mucous build-up in the lungs which may cause further medical problems.

Diabetes. Caused by problems with insulin production, this condition can result in fatigue, mobility and visual problems.

Glaucoma. This is a condition of excessive pressure in the eye. It can be congenital or acquired later in life and may cause pain and severe visual problems, including blindness.

Head Injury. This type of injury can have wide-spread consequences for mobility, coordination, vision, hearing, speech, memory and emotional control.

Learning Disabilities. This phrase is a catchall for a variety of disorders which interfere with the perception, processing or transmission of information. The cause is usually unknown but it is usually present from birth. Some common types of learning disabilities are:

Dyscalculia - arithmetic disability

Dysgraphia - handwriting disability

Dyslexia - reading disability

Dysorthographia - spelling disability

Maternal Rubella. German measles contracted by a mother during pregnancy may result in hearing and sometimes visual impairments.

Multiple Sclerosis. MS is a condition which usually becomes evident between the ages of 20 and 40. It affects the nervous system and is a progressive disease which manifests itself in a series of remissions and flare-ups. Among the abilities which may be affected are stamina, leg and arm movement, sight, hearing and internal organ function. Because of the sporadic nature of MS, students may appear healthy one day and be in a wheelchair the next.

Muscular Dystrophy. This hereditary condition is progressive and affects muscular control. It often results in atrophied muscles and causes mobility impairments, coordination problems and spasticity. Many individuals with MD use a wheelchair.

Paraplegia. This condition, usually due to an accidental injury to the spine, results in paralysis of the lower limbs. It causes mobility problems and usually necessitates the use of a wheelchair.

Quadriplegia. Due to an accidental spinal cord injury, this condition is associated with paralysis and/or loss of control of both lower and upper limbs. Head movement is usually preserved, but students will usually use a motorized wheelchair and will have difficulty writing.

Retrolental Fibroplasia. RLF is generally caused by excessive oxygen administered shortly after birth. It results in scar tissue forming behind the lens of the eye. This interrupts the development of the eye and leads to visual impairments.

Retinitis Pigmentosa. This hereditary disorder is progressive and is characterized by a hardening of the retina. It causes defective night vision, tunnel vision and, possibly, blindness.

Spina Bifida. This congenital condition is caused by an incomplete closure of the spine. The disorder is not progressive but it often results in mobility problems.

17. RESOURCES

AHSSPE (Association on Handicapped Student Service Programs in Postsecondary Education). P.O.Box 21192, Columbus, Ohio, U.S.A. 43221.

CRCD (Canadian Rehabilitation Council for the Disabled). One Yonge St., Suite 2110, Toronto, Ontario, Canada M5E 1E5.

HEATH Resource Center (Higher Education and Adult Training for People with Handicaps - The National Clearinghouse on Postsecondary Education for Handicapped Individuals). One Dupont Circle, N.W., Suite 800, Washington, D.C. 20036-1193.

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